2. Specification

2-1. GSM General Specification

	GSM850	EGSM 900	DCS1800	PCS1900	WCDMA 2100	WCDMA 1900	WCDMA 900	WCMDA 850
Freq. Band[MHz] Uplink/ Downlink	824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1922~1977 2112~2167	1852~1907 1932~1987	880~915 925~960	824~849 869~894
ARFCN range	128~251	0~124 & 975~1023	512~885	512~810	UL: 9612~9888 DL: 10562~10838	UL: 9262~9538 DL: 9662~9938	UL: 2712~2863 DL: 2937~3088	UL: 4132~4233 DL: 4357~4458
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz	190MHz	80MHz	45MHz	45MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps	3.84Mcps	3.84Mcps	3.84Mcps
Time Slot Period/ Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms	FrameLength: 10ms Slotlength: 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	QPSKHQPSK	QPSKHQPSK	QPSKHQPSK	QPSKHQPSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	24dBm~ -50dBm	24dBm~ -50dBm	24dBm~ -50dBm	24dBm~ -50dBm
Power Class	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-106.7dBm	-106.7dBm	-106.7dBm	-106.7dBm
TDMA Mux	8	8	8	8	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km	2Km	2Km	2Km	2Km

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

2-2. GSM Tx Power Class

TX Power control level	GSM850
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	EGSM900
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	DCS1800
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

TX Power control level	PCS1900
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

3. Operation Instruction and Installation

Main Function

- HSPA+
  - HSDPA 21Mbps / HSUPA 5.76MBps Quad-Band (850/900/1900/2100 MHz)

- EDGE/GPRS
  - EDGE/GPRS Quad-Band (850/900/1800/1900 MHz)

- Dual Core
  - 1.2 GHz

- Full HD (1080p), Playback & Recording

- 4.3"(108.5 mm) Super AMOLED plus

- GPS / GLONASS

- 8MP AP Camera + 2MP VT

- 1650mAh Battery

- NFC / S-Beam

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

6. Level 6 Repair

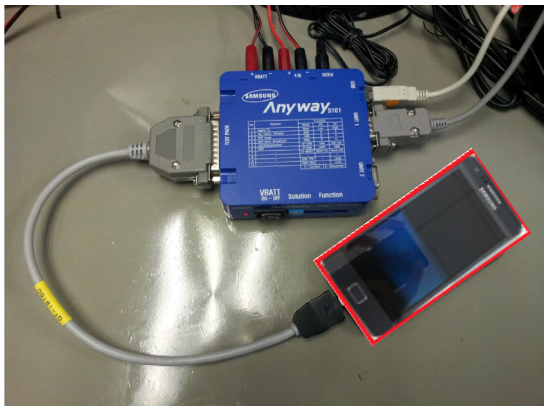
6-1. S/W installation

6-1-1. Required items in order to install S/W

- Installation program: Downloader Program (**Odin3 v3.06.exe**)
- GT-I9105P Mobile Phone
- Data Cable (USB)
- JIG BOX (GH99-36900B)
- JIG Cable (GH39-01290A)
- Adapter (GH99-38251A)
- Serial Cable
- Mobile device specific S/W: Binary files ++

※ Settings

Connect ANYWAY JIG BOX
with JIG CABLE (Phone to JIG)
or PC to Phone Using Data Cable



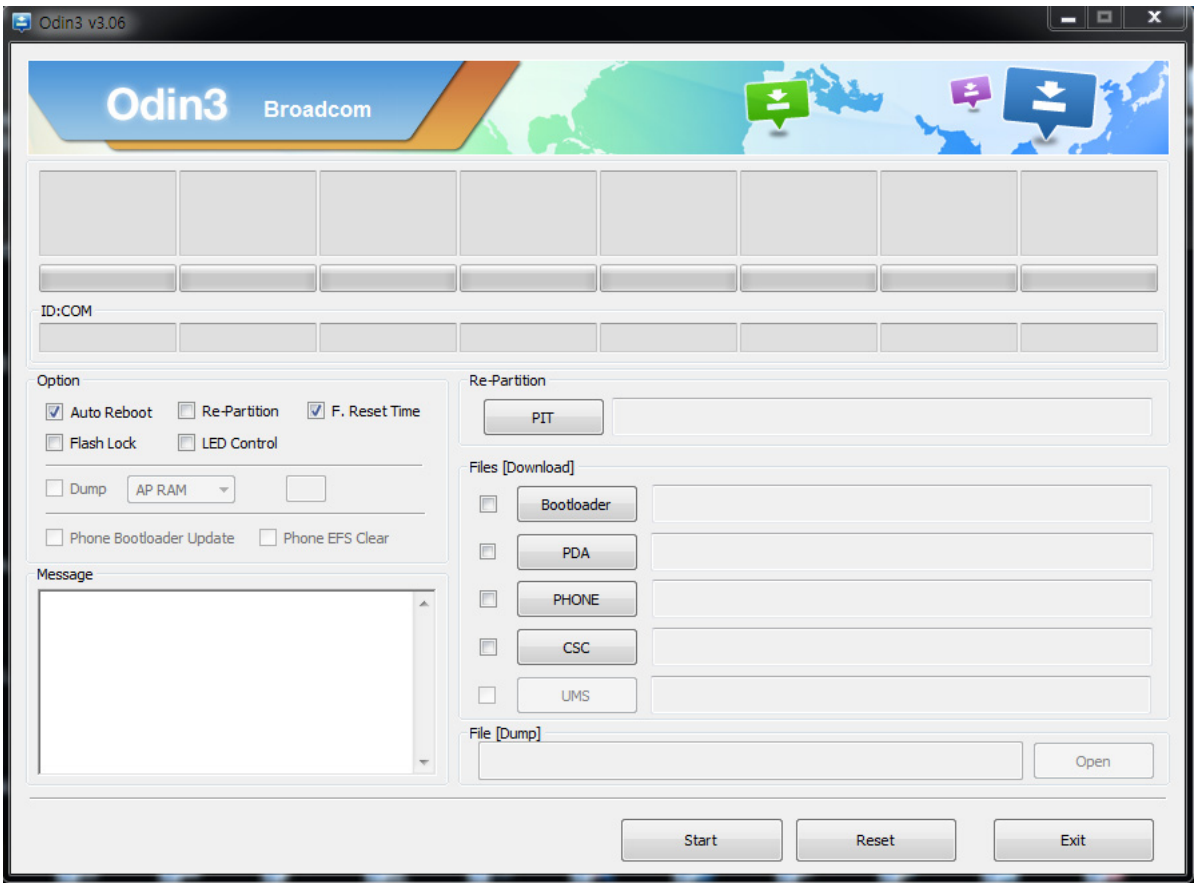
Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

Chipset Solution Switch - 4

No.	solution
1	AGERE (Agere TC)
2	VISION (HP, Vision, Infineon)
3	SYSOL (NXP Sysol)
4	SWIFT (NXP Swift, Broadcom)
5	UMTS (Qualcomm)
6	EMP
7	UMTS (UART 1.8V)

6-1-2. S/W Installation Program (Downloader program)

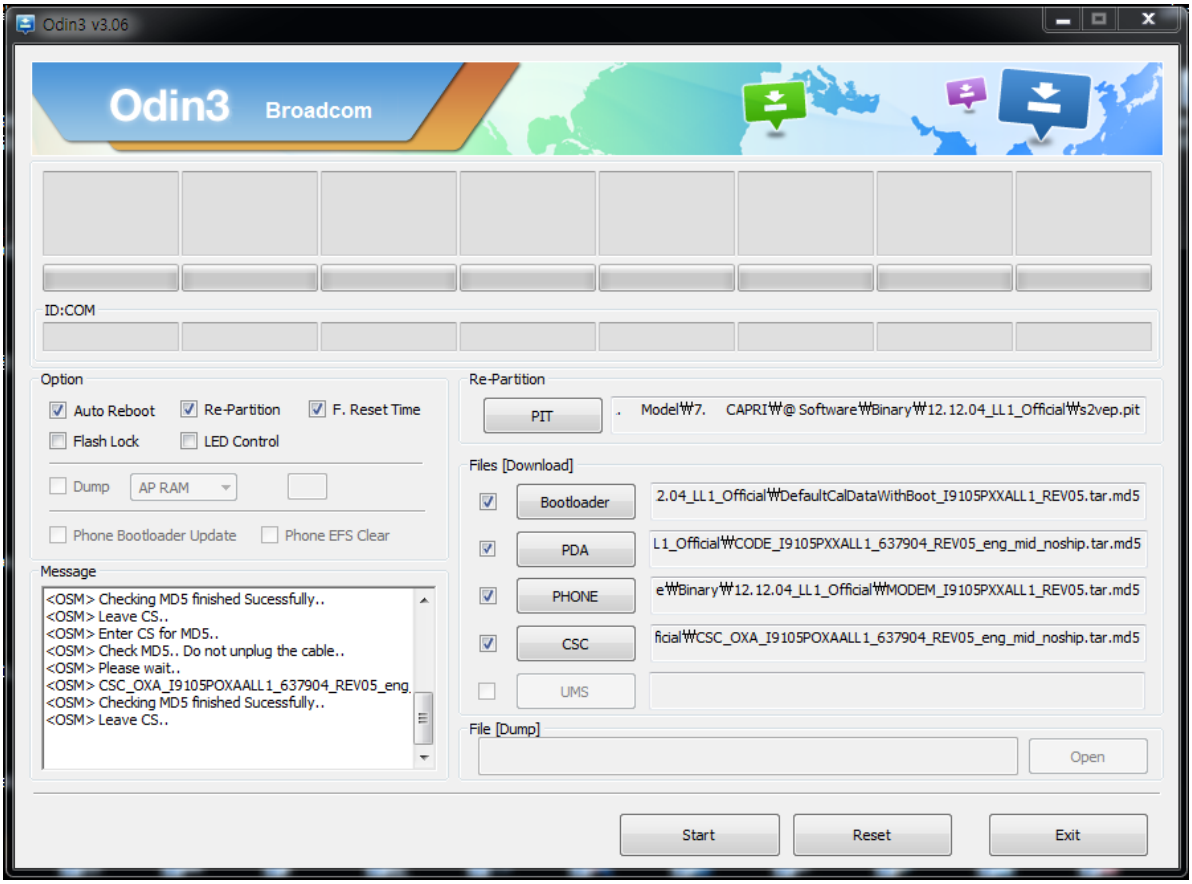
■ Open up the S/W Installation Program by executing the **"Odin3 v3.06.exe"**



Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

1. Enable the check mark by click on the following options,

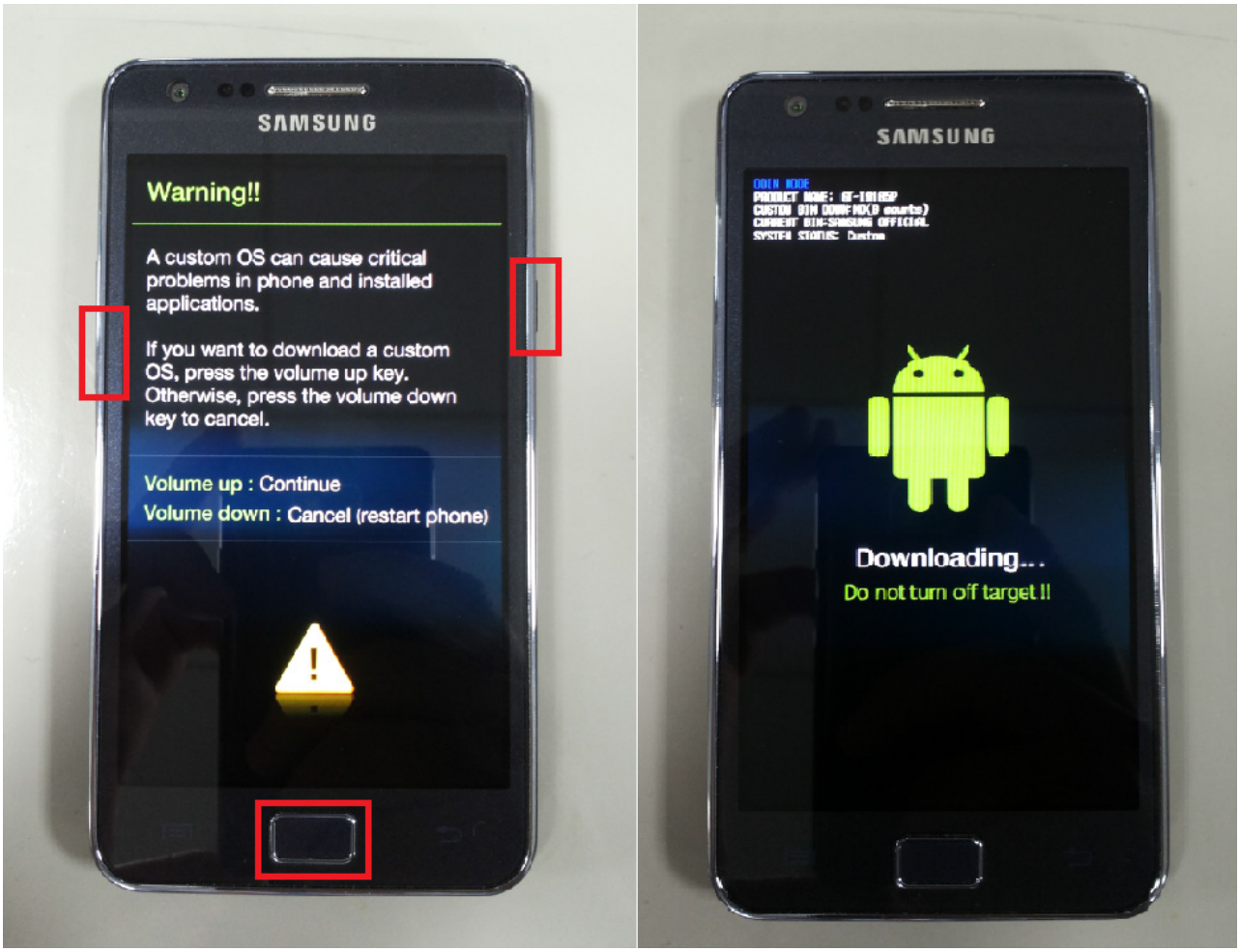
- Auto Reboot, Re-Partition and F. Reset Time
- Check PIT, BOOTLOADER, PDA, PHONE and CSC Files



Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

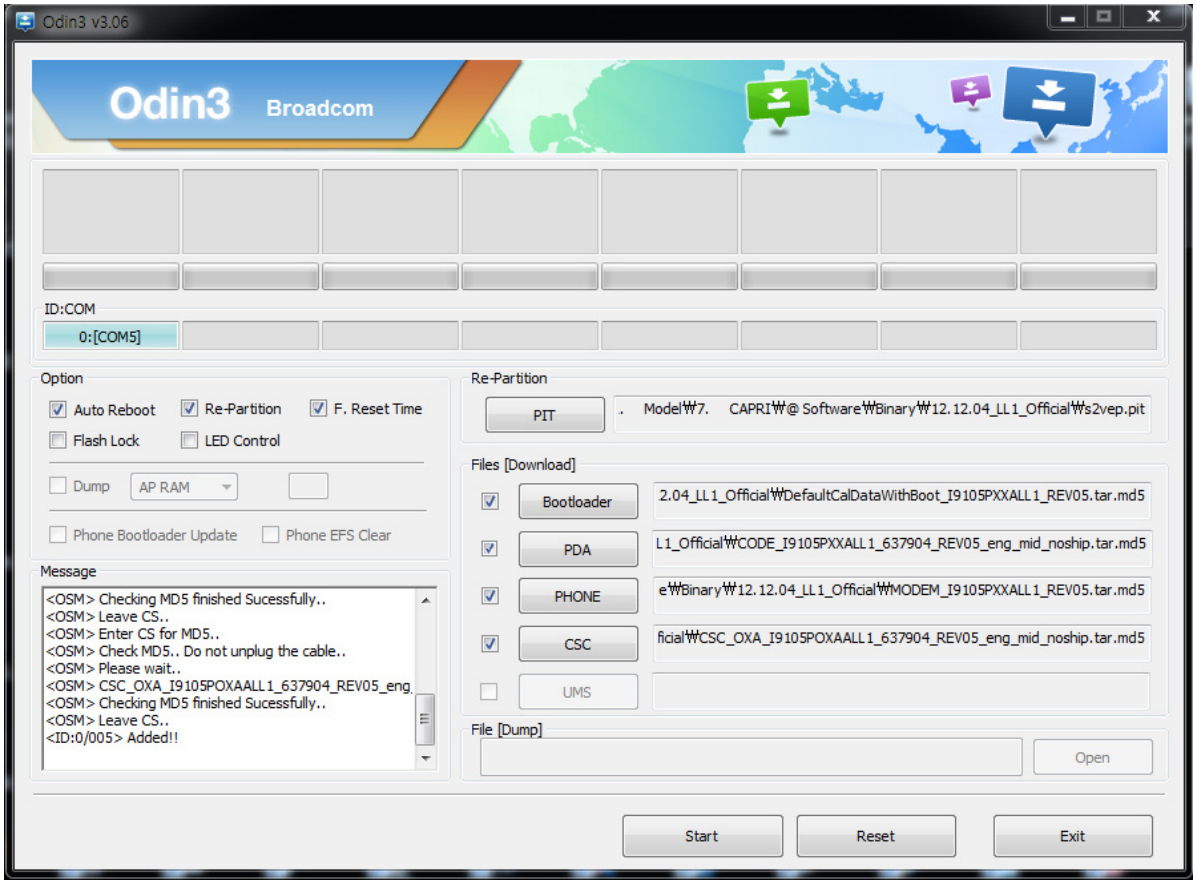
2. Enter into Download Mode

- Enter into Download Mode by pressing Volume Down button, Home button, and ON/OFF Button simultaneously. Once the 1st warning screen appears, press Volume UP button for custom OS download mode. Then the 2nd display will appear.


SAMSUNG
Warning!!
A custom OS can cause critical problems in phone and installed applications.
If you want to download a custom OS, press the volume up key. Otherwise, press the volume down key to cancel.
Volume up : Continue
Volume down : Cancel (restart phone)
SAMSUNG
Downloading...
Do not turn off target !!

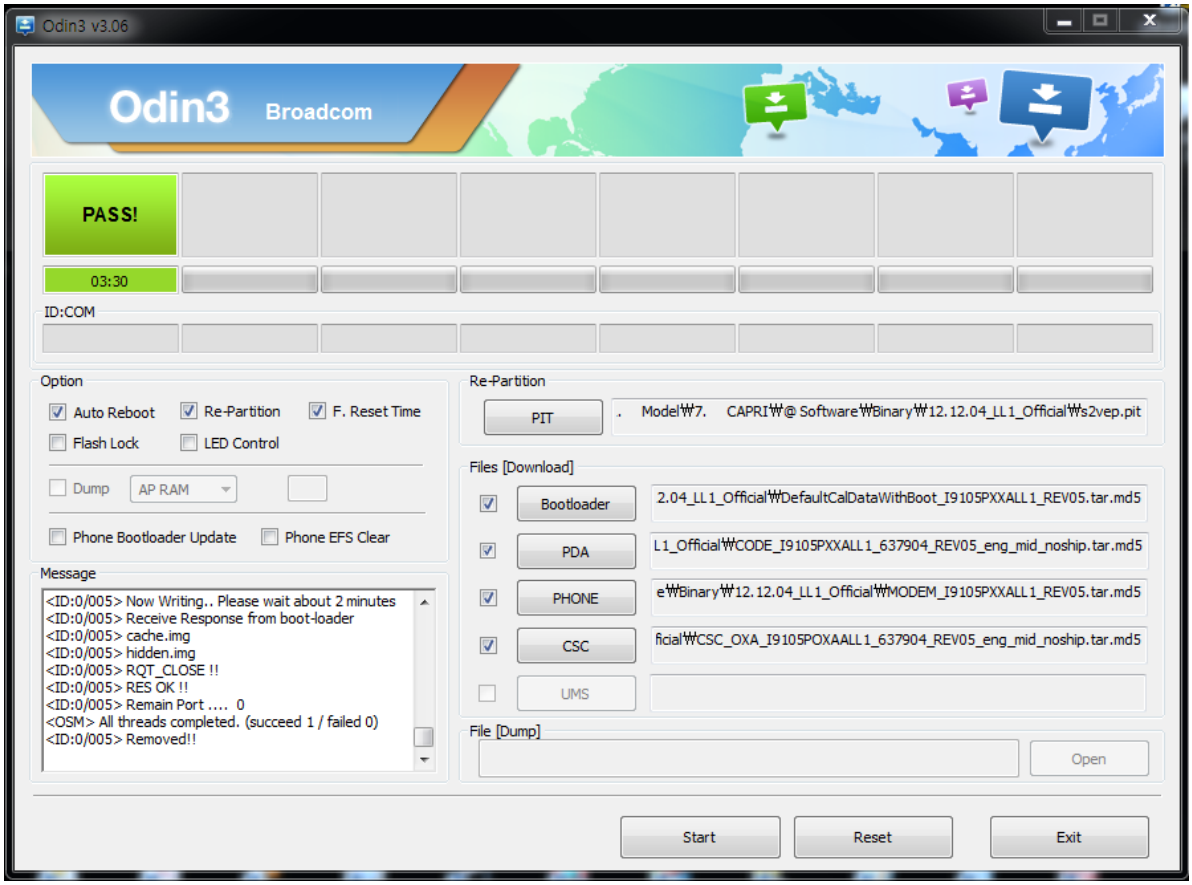
Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

3. Connect the device to PC via Data Cable.
Make sure that the one of communication port [ID:COM] box is highlighted in Azure color.
The device is now connected with the PC and ready to download the binary file into the device.



Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

4. Start downloading binary file into the device by clicking Start Button on the screen. the green colored "PASS!" sign will appear on the upper-left box if the binary file has been successfully downloaded into the device.



Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

5. Disconnect the device from the JIG cable.

6. Once the device boots up, you can check the version of the binary file or name by pressing the following code in sequence;
***#1234#**

You can perform full reset by pressing the following code in sequence;
***#87976633#**

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

9. Reference Abbreviate

Reference Abbreviate

—AAC: AdvancedAudioCoding.
—AVC: AdvancedVideoCoding.
—BER: BitErrorRate
—BPSK: BinaryPhaseShiftKeying
—CA: ConditionalAccess
—CDM: CodeDivisionMultiplexing
—C/I: CarriertoInterference
—DMB: DigitalMultimediaBroadcasting
—두: EuropeanStandard
—ES: ElementaryStream
—ETSI: EuropeanTelecommunicationsStandardsInstitute
—MPEG: MovingPictureExpertsGroup
—PN: Pseudo-randomNoise
—PS: PilotSymbol
—QPSK: QuadraturePhaseShiftKeying
—RS: Reed-Solomon
—SI: ServiceInformation
—TDM: TimeDivisionMultiplexing
—TS: TransportStream

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

1. Safety Precautions

1-1. Repair Precaution

Before attempting any repair or detailed tuning, shield the device from RF noise or static electricity discharges.

Use only demagnetized tools that are specifically designed for small electronic repairs, as most electronic parts are sensitive to electromagnetic forces.

Use only high quality screwdrivers when servicing products. Low quality screwdrivers can easily damage the heads of screws.

Use only conductor wire of the properly gauge and insulation for low resistance, because of the low margin of error of most testing equipment.
We recommend 22-gauge twisted copper wire.

Hand-soldering is not recommended, because printed circuit boards (PCBs) can be easily damaged, even with relatively low heat. Never use a soldering iron with a power rating of more than 100 watts and use only lead-free solder with a melting point below 250°C (482°F).

Prior to disassembling the battery charger for repair, ensure that the AC power is disconnected. Always use the replacement parts that are registered in the SEC system. Third-party replac ement parts may not function properly.

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Many semiconductors and ESDs in electronic devices are particularly sensitive to static discha rge and can be easily damaged by it. We recommend protecting these components with cond uctive anti-static bags when you store or transport them.

Always use an anti-static strap or wristband and remove electrostatic buildup or dissipate static electricity from your body before repairing ESDs.

Ensure that soldering irons have AC adapter with ground wires and that the ground wires are properly connected.

Use only desoldering tools with plastic tips to prevent static discharge.

Properly shield the work environment from accidental electrostatic discharge before opening packages containing ESDs.

The potential for static electricity discharge may be increased in low humidity environments, such as air-conditioned rooms. Increase the airflow to the working area to decrease the chance of accidental static electricity discharges.

Confidential and proprietary-the contents in this service guide subject to change without prior notice.
Distribution, transmission, or infringement of any content or data from this document without Samsung's written authorization is strictly prohibited.